

RobustLine damper actuator capable of communication for adjusting dampers in industrial plants and in technical building installations

- Damper size up to approx. 4 m²
- Nominal torque 20 Nm
- Nominal voltage AC/DC 24 V
- Control modulating DC 0 V ... 10 V or variable
- Position feedback DC 2 V ... 10 V or variable
- Optimum protection against corrosion and chemical influences, UV radiation, moisture and condensation


Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	4 W
	Power consumption at rest	1.25 W
	Power consumption for wire sizing	6 VA
	Connection supply / control	Cable 1 m, 4 x 0.75 mm ² (halogen-free)
Functional data	Torque motor	Min. 20 Nm
	Torque variable	25%, 50%, 75% reduced
	Positioning signal Y	DC 0...10 V
	Positioning signal Y note	Input impedance 100 kΩ
	Positioning signal Y variable	Open-close 3-point (only AC) modulating (DC 0...32 V)
	Operating range Y	DC 2...10 V
	Operating range Y variable	Starting point DC 0.5...30 V End point DC 2.5...32 V
	Position feedback U	DC 2...10 V
	Position feedback U note	max. 0.5 mA
	Position feedback U variable	Starting point DC 0.5...8 V End point DC 2.5...10 V
	Position accuracy	±5%
	Direction of rotation motor	As an option with switch 0 / 1
	Direction of motion at Y = 0V	Y = 0 V: At switch position 0 (counter-clockwise rotation) / 1 (clockwise rotation)
	Direction of motion variable	Electronically reversible
	Manual override	Gear disengagement with push-button, can be locked
	Angle of rotation	Max. 95°
	Running time motor	150 s / 90°
	Running time motor	86...346 s
	Angle of rotation adaptation	Automatic adaptation of operating range and feedback to match the mechanical angle of rotation: Manual triggering of the adaption by pressing the "Adaption" button or with the PC-Tool
	Angle of rotation adaptation variable	Automatic adaption / synchronisation whenever the supply voltage is switched on
	Override control	MAX (maximum position) = 100% MIN (minimum position) = 0%
	Override control variable	MAX = (MIN + 30%) ... 100% MIN = 0% ... (MAX - 30%) ZS = MIN ... MAX
	Sound power level motor	35...45 dB (A)
Spindle driver	Universal spindle clamp 14...20 mm	
Position indication	Mechanical, pluggable	
Safety	Protection class IEC/EN	III Safety extra-low voltage
	Degree of protection IEC/EN	IP66 + IP67
	EMC	CE according to 2004/108/EC

Technical data

Safety	Principle of operation	Type 1
	Rated impulse voltage supply / control	0.8 kV
	Control pollution degree	4
	Ambient temperature	-30°C ... 50°C
	Non-operating temperature	-40°C ... 80°C
	Ambient humidity	100% r.h.
	Maintenance	Maintenance-free
Weight	Weight approx.	1.55 kg

Safety notes



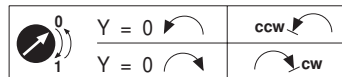
- The actuator is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.
- The cover of the protective housing may be opened for adjustment and servicing. When it is closed afterwards, the housing must seal tight (see installation instructions).
- The device on the inside may be opened only at the manufacturer's factory. It does not contain any parts that can be replaced or repaired by the user.
- The cable must not be removed from the device.
- When calculating the torque required, the specifications supplied by the damper manufacturers (cross-section, construction, place of installation), and the ventilation conditions must be observed.
- The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.
- The information on chemical resistance refers to laboratory tests with raw materials and finished products and to trials in the field in the fields of application indicated.
- The materials used may be subjected to external influences (temperature, pressure, constructional fastening, effect of chemical substances etc.) that cannot be simulated in laboratory tests or field trials.
- The information regarding fields of application and resistance can therefore only serve as a guideline. In case of doubt, we definitely recommend that you carry out a test. This information does not imply any legal entitlement. Belimo will not be held liable and will provide no warranty. The chemical or mechanical resistance of the materials used is not alone sufficient for judging the suitability of a product. Regulations pertaining to combustible liquids such as solvents etc. must be taken into account with special reference to explosion protection.

Product features

Resistances	Noxious gas test EN 60068-2-60 (Fraunhofer Institut ICT / DE) Salt fog spray test EN 60068-2-52 (Fraunhofer Institut ICT / DE) Ammoniac test DIN 50916-2 (Fraunhofer Institut ICT / DE) Climate test IEC60068-2-30 (Trikon Solutions AG / CH) Disinfectant (animals) (Trikon Solutions AG / CH) UV Test (Solar radiation at ground level) EN 60068-2-5, EN 60068-2-63 (Quinel / Zug CH)
Used materials	Actuator housing polypropylene (PP) Cable glands / hollow shaft polyamide (PA) Connecting cable FRNC Spindle clamp / screws in general Steel 1.4404 Seals EPDM Form-fit insert aluminium anodised

Product features

Principle of operation	The actuator is connected with a standard modulating signal of DC 0 ... 10V and travels to the position defined by the positioning signal. Measuring voltage U serves for the electrical display of the damper position 0 ... 100% and as slave control signal for other actuators.
Adjustable-parameter actuators	The factory settings cover the most common applications. Individual parameters can be altered with the BELIMO service tool MFT-P or with the service tool ZTH-GEN.
Direct mounting	Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with a universal mounting bracket to prevent the actuator from rotating.
Manual override	Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).
Adjustable angle of rotation	Adjustable angle of rotation with mechanical end stops. Standard setting 0 ... 90°. The housing cover must be removed to set the angle of rotation.
High functional reliability	The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.
Home position	The actuator moves to the home position when the supply voltage is switched on for the first time, i.e. at the time of commissioning or after pressing the "gear disengagement" key. The actuator then moves into the position defined by the positioning signal.



Electrical installation

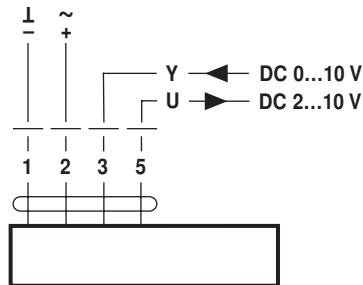


Notes

- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

AC/DC 24 V, modulating

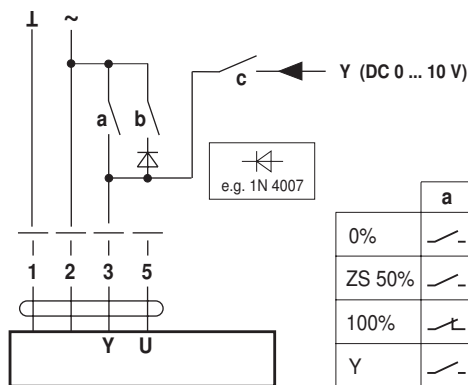


Cable colours:
 1 = black
 2 = red
 3 = white
 5 = orange

Functions

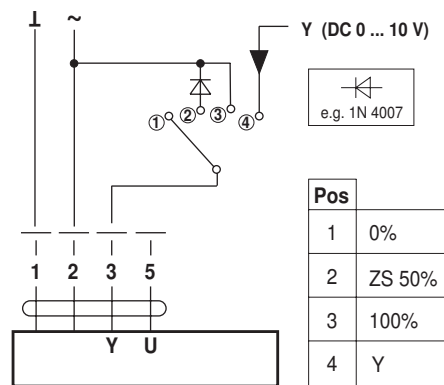
Functions with basic values

Override control with AC 24 V with relay contacts



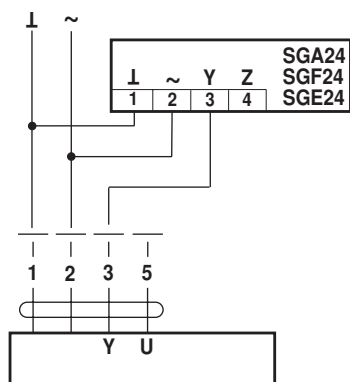
	a	b	c
0%			
ZS 50%			
100%			
Y			

Override control with AC 24 V with rotary switch

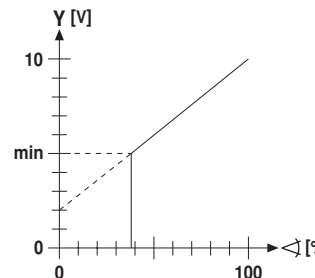
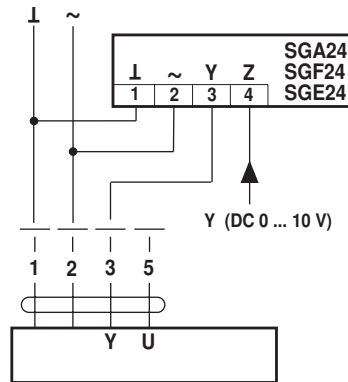


Pos	
1	0%
2	ZS 50%
3	100%
4	Y

Remote control 0 ... 100%

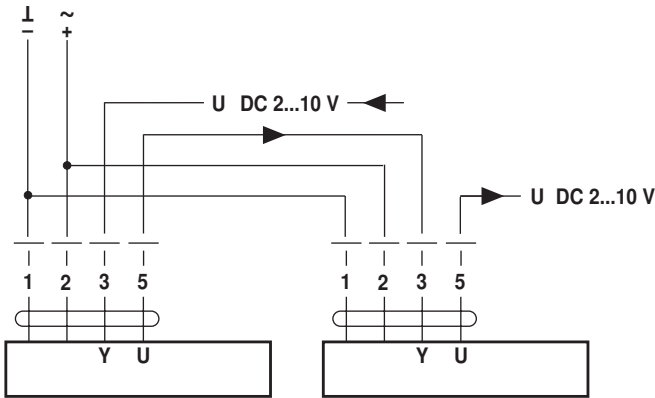


Minimum limit

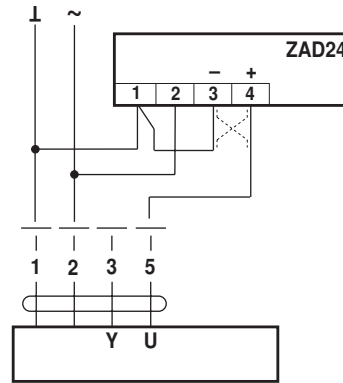


Functions

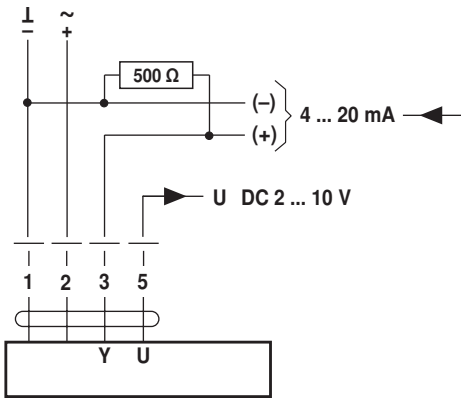
Follow-up control (position-dependent)



Position indication

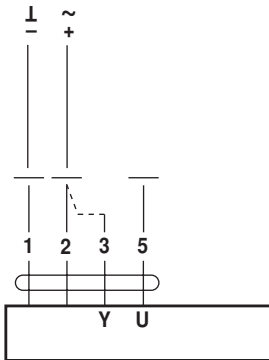


Control with 4 ... 20 mA via external resistor



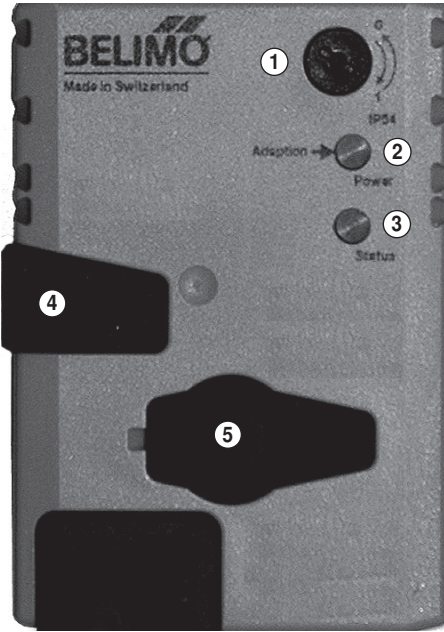
Caution:
The operating range must be set to DC 2...10 V.
The 500 Ω resistor converts the 4 ... 20 mA current signal to a voltage signal DC 2 ... 10 V

Functional check



- Procedure
- Connect AC 24V to connections 1 and 2
 - Disconnect connection 3:
 - with direction of rotation 0: Actuator rotates to the left
 - with direction of rotation 1: Actuator rotates to the right
 - Short-circuit connections 2 and 3:
 - Actuator runs in opposite direction

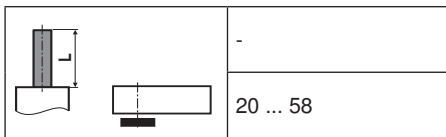
Indicators and operating elements



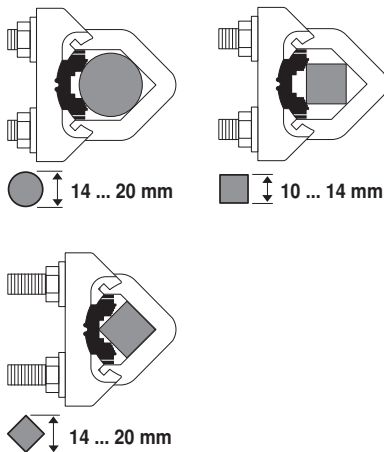
- (1) Direction of rotation switch
Switch over: Direction of rotation changes
 - (2) Push-button and LED display green
Off: No power supply or malfunction
Illuminated: In operation
Press button: Triggers angle of rotation adaptation, followed by standard mode
 - (3) Push-button and LED display yellow
Off: Standard mode
Illuminated: Adaption or synchronisation procedure active
Press button: No function
 - (4) Gear disengagement button
Press button: Gear disengages, motor stops, manual override possible
Release button: Gear engages, synchronisation starts, followed by standard mode
 - (5) Service plug
For connecting the parameterisation and service tools
- Power supply connection check
 a) (2) Off and (3) Blinking
 b) (2) Blinking and (3) Blinking
 Supply connections check. The phases may have been switched.

Dimensions [mm]

Spindle length



Clamping range



Dimensional drawings

